```
Set     Items   Description
S1    2366850   NETWORK? OR INTRANET? OR SERVER? OR REMOTE()STORAGE? OR RO-
            UTER? OR NODE?
S2    2886576   DATAFILE? OR FILE? OR OBJECT? OR VIDEO? OR MULTIMEDIA? OR -
            BLOB OR BLOBS
S3    6687336   MOVE? OR RELOCAT? OR REPOSITION? OR REDISTRIBUT? OR DISTRI-
            BUT? OR TRANSFER?
S4    1378709   PLACE? OR (GEOGRAPHIC? OR PHYSICAL? OR ACTUAL)(3N)(LOCATIO-
            N? OR ADDRESS?)
S5    2024393   NEAR OR NEARBY OR CLOSE OR CLOSER OR SHORTEST()DISTANC? OR
            PROXIMIT?
S6     613919   (USAGE OR ACCESS)(3N)(PATTERN? OR USE OR USAGE? OR FREQUEN-
            T?) OR MOST()POPULAR? OR TRAFFIC?
S7      27302   S2 AND S3 AND S5
S8        901   S6 AND S7
S9       6027   (S1 OR CACHE? OR STORING OR SAVING)(5N)S2(5N)S6
S10       901   S5 AND S8
S11       231   S4 AND (S8 OR S9)
S12     65994   S2(3N)S3
S13        37   S11 AND S12
S14        27   RD (unique items)
S15        24   S14 NOT PY>2002
S16        24   S15 NOT PD=20020102:20040501
File   8:Ei Compendex(R) 1970-2004/Apr W2
         (c) 2004 Elsevier Eng.  Info. Inc.
File  35:Dissertation Abs Online 1861-2004/Mar
         (c) 2004 ProQuest Info&Learning
File 202:Info. Sci. & Tech. Abs. 1966-2004/Feb 27
         (c) 2004 EBSCO Publishing
File  65:Inside Conferences 1993-2004/Apr W3
         (c) 2004 BLDSC all rts. reserv.
File   2:INSPEC 1969-2004/Apr W2
         (c) 2004 Institution of Electrical Engineers
File  94:JICST-EPlus 1985-2004/Apr W1
         (c)2004 Japan Science and Tech Corp(JST)
File 111:TGG Natl.Newspaper Index(SM) 1979-2004/Apr 22
         (c) 2004 The Gale Group
File 233:Internet & Personal Comp. Abs. 1981-2003/Sep
         (c) 2003 EBSCO Pub.
File   6:NTIS 1964-2004/Apr W3
         (c) 2004 NTIS, Intl Cpyrght All Rights Res
File 144:Pascal 1973-2004/Apr W2
         (c) 2004 INIST/CNRS
File 434:SciSearch(R) Cited Ref Sci 1974-1989/Dec
         (c) 1998 Inst for Sci Info
File  34:SciSearch(R) Cited Ref Sci 1990-2004/Apr W3
         (c) 2004 Inst for Sci Info
File  99:Wilson Appl. Sci & Tech Abs 1983-2004/Mar
         (c) 2004 The HW Wilson Co.
```

16/5/1 (Item 1 from file: 8)
DIALOG(R)File 8:Ei Compendex(R)
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06153134 E.I. No: EIP02407122319
Title: Silo, rainbow, and caching token: Schemes for scalable, fault tolerant stream caching
Author: Chae, Youngsu; Guo, Katherine; Buddhikot, Milind M.; Suri, Subhash; Zegura, Ellen W.
Corporate Source: College of Computing Georgia Institute of Technology, Atlanta, GA 30332, United States
Source: IEEE Journal on Selected Areas in Communications v 20 n 7 September 2002. p 1328-1344
Publication Year: 2002
CODEN: ISACEM ISSN: 0733-8716
Language: English
Document Type: JA; (Journal Article) Treatment: T; (Theoretical)
Journal Announcement: 0210W1
Abstract: In the current Internet, Web content is increasingly being cached **closer** to the end user to reduce network and Web server load and improve performance. Existing Web caching systems typically cache entire Web documents and attempt to keep them consistent with the origin server. This approach works well for text and images; for bandwidth intensive **multimedia** data such as audio and **video** , caching entire documents is not cost effective and does not scale. An alternative approach is to cache parts of the **multimedia** stream on different caches in the network and coordinate stream playback from these independent caches. From the perspective of the clients, the collection of cooperating **distributed** caches act as a single fault tolerant, scalable cache. In this paper, we focus on data **placement** and replacement techniques for such cooperating **distributed** caches. Specifically, we propose the following new schemes that work together. 1) A family of **distributed** layouts, consisting of two layouts, namely RCache and Silo. The RCache layout is a simple, randomized, easy-to-implement layout that **distributes** constant length segments of a clip among caches and provides modest storage efficiency. The Silo scheme improves upon RCache; it accounts for long term clip popularity and intraclip segment popularity metrics and provides parameters to tune storage efficiency, server load, and playback switch-overs. 2) Rainbow, a local data replacement scheme based on the concept of segment access potential that accurately captures the popularity metrics. 3) Caching Token, a dynamic global data replacement or **redistribution** scheme that exploits existing data in **distributed** caches to minimize data **distribution** overhead. Our schemes optimize storage space, startup latency, server load, network bandwidth **usage** , and overhead from playback switch-overs. Our analytical and simulation results show that the Silo scheme provides three to eight times higher cache hit ratio than a comparable traditional Web caching system that has the same amount of storage space. 30 Refs.
Descriptors: Cache memory; Fault tolerant computer systems; World Wide Web; Servers; **Multimedia** systems; **Video** on demand; **Distributed** computer systems; Bandwidth; Computer simulation
Identifiers: **Multimedia** streaming
Classification Codes:
722.1 (Data Storage, Equipment & Techniques); 722.4 (Digital Computers & Systems); 723.5 (Computer Applications); 716.4 (Television Systems & Equipment); 716.1 (Information & Communication Theory)
722 (Computer Hardware); 723 (Computer Software, Data Handling & Applications); 716 (Electronic Equipment, Radar, Radio & Television)
72 (COMPUTERS & DATA PROCESSING); 71 (ELECTRONICS & COMMUNICATION ENGINEERING)

16/5/4 (Item 4 from file: 8)
DIALOG(R)File 8:Ei Compendex(R)
(c) 2004 Elsevier Eng. Info. Inc. All rts. reserv.

05667191 E.I. No: EIP00105351369
Title: Distributed multimedia **application configuration management**
Author: Hagin, Alexander; Dermler, Gabriel; Rothermel, Kurt; Shchemelev, Gennadij
Corporate Source: COSS Systemtechnik AG, Stuttgart, Ger
Source: IEEE Transactions on Parallel and Distributed Systems v 11 n 7 Jul 2000. p 669-682
Publication Year: 2000
CODEN: ITDSEO ISSN: 1045-9219
Language: English
Document Type: JA; (Journal Article) Treatment: A; (Applications); T; (Theoretical)
Journal Announcement: 0011W3
Abstract: Employing **distributed multimedia** applications (DMA) requires management support for multiple configuration steps including the definition of a desired DMA topology, the specification of a desired quality of service (QoS) and its enforcement through resource reservation. In this paper, we examine the additional aspect of finding an appropriate **placement** for a DMA within a **distributed** computer system (DCS). An overall approach is described for interrelating **placement** functions with existing procedures for topology and QoS specification and resource reservation. Then the problem of assigning a DMA within a DCS is formulated with the goal of finding a DMA **placement** with minimized computation and communication cost. For solving the assignment problem an efficient heuristic algorithm - SIGMA - is presented. Unlike other approaches, SIGMA takes into account requirements, which are specific for **multimedia** applications. Based on experiments conducted for randomly generated DMA and DCS graphs, the efficiency and accuracy of SIGMA is shown to be encouraging because, at low execution times, it finds assignments with cost very **close** to the optimal one. (Author abstract) 39 Refs.
Descriptors: **Distributed** computer systems; **Multimedia** systems; Data structures; Telecommunication **traffic** ; Congestion control (communication) ; Response time (computer systems); Computational complexity; Problem solving; Heuristic methods; Algorithms
Identifiers: **Distributed multimedia** applications (DMA); Quality of service (QoS)
Classification Codes:
722.4 (Digital Computers & Systems); 723.5 (Computer Applications); 723.2 (Data Processing); 721.1 (Computer Theory, Includes Formal Logic, Automata Theory, Switching Theory, Programming Theory); 922.2 (Mathematical Statistics)
722 (Computer Hardware); 723 (Computer Software); 721 (Computer Circuits & Logic Elements); 921 (Applied Mathematics); 922 (Statistical Methods)
72 (COMPUTERS & DATA PROCESSING); 92 (ENGINEERING MATHEMATICS)

16/5/6 (Item 6 from file: 8)
DIALOG(R)File 8:Ei Compendex(R)
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04953470 E.I. No: EIP98024092102
Title: MMPacking: A load and storage balancing algorithm for distributed multimedia **servers**
Author: Serpanos, D.N.; Georgiadis, L.; Bouloutas, T.
Corporate Source: Foundation for Research and Technology-Hellas, Crete, Greece
Source: IEEE Transactions on Circuits and Systems for Video Technology v 8 n 1 Feb 1998. p 13-17
Publication Year: 1998
CODEN: ITCTEM ISSN: 1051-8215
Language: English
Document Type: JA; (Journal Article) Treatment: T; (Theoretical)
Journal Announcement: 9804W4
Abstract: In **distributed multimedia** servers where client requests for different video streams may have different probabilities, **placement** of video streams is an important parameter because it may result in unbalanced requests to the system's stations, and thus to high blocking probabilities of requests. We present a method, MMPacking, to balance **traffic** load and storage use in a distributed **server** environment. Since different **video** streams are requested by clients with different rates, video stream replication is used to balance the traffic patterns of the stations; thus, the requests and I/O usage of the stations are balanced, since replication allows requests for the same video stream to be routed to different stations. MMPacking achieves load balancing by producing at most N minus 1 replicas of video streams in a system with N servers. These replicas are distributed among the stations so that storage balancing is achieved as well, since no station stores more than two video streams more than any other station in the system. (Author abstract) 8 Refs.
Descriptors: *Digital communication systems; Algorithms; Telecommunication traffic; Interactive computer systems; Probability; Distributed computer systems
Identifiers: **Distributed multimedia** servers; Storage balancing; Video on demand
Classification Codes:
722.3 (Data Communication, Equipment & Techniques); 722.4 (Digital Computers & Systems); 922.1 (Probability Theory)
716 (Radar, Radio & TV Electronic Equipment); 722 (Computer Hardware); 723 (Computer Software); 921 (Applied Mathematics); 922 (Statistical Methods)
71 (ELECTRONICS & COMMUNICATIONS); 72 (COMPUTERS & DATA PROCESSING); 92 (ENGINEERING MATHEMATICS)

16/5/11 (Item 4 from file: 35)
DIALOG(R)File 35:Dissertation Abs Online
(c) 2004 ProQuest Info&Learning. All rts. reserv.

1040341 ORDER NO: AAD89-02170
OPTIMIZATION OF FILE MIGRATION IN DISTRIBUTED SYSTEMS
Author: KURE, OIVIND
Degree: PH.D.
Year: 1988
Corporate Source/Institution: UNIVERSITY OF CALIFORNIA, BERKELEY (0028)
Source: VOLUME 49/11-B OF DISSERTATION ABSTRACTS INTERNATIONAL.
PAGE 4905. 278 PAGES
Descriptors: COMPUTER SCIENCE
Descriptor Codes: 0984

This dissertation presents and evaluates several new algorithms that improve the performance of **distributed file** systems by migrating or copying files as necessary between system nodes. The results are based on analysis of file reference patterns from three commercial installations, modeling, and trace driven simulation.

The first part of the dissertation is an exploratory analysis of how shared user files are referenced. We find that although few files are shared, they are opened frequently, and account for a large fraction of the I/O traffic to user files. The reference pattern to shared files is not easily characterized, and varies widely among files. A batch Poisson process with geometric batch size is determined to be the most appropriate model.

Based on the exploratory analysis, we developed several algorithms for file migration and replication. The algorithms evaluated include those based on our file reference pattern analysis, as well as simple strategies such as static **placement** and movement on reference, and optimal look-ahead migration and **placement** . We found that only a few files should be migrated or replicated, but replication or migration can substantially reduce the network traffic (up to 63% for replication and 36% for migration, relative to static **placement**).

A policy based on a batch Poisson process with geometric batch size has the best performance when replication is not allowed. It uses as decision variables the fraction of a file accessed per open, the number of references from a user, and the number of changes in locality.

By replicating **files** , the **network traffic** can be reduced further compared to migration alone (up to 42%). Whether the additional copies should be invalidated or updated when the file is updated depends on the installation and the rules for placing users at nodes. The algorithms with the best performance use the average reference rate, the number of consecutive opens in update mode, and the time since the node started using the file as the decision variables. By comparing our realizable algorithms with optimal unrealizable algorithms, we show that it is unlikely that other migration or replication algorithms can achieve a substantially better performance.

16/5/13 (Item 2 from file: 2)
DIALOG(R)File 2:INSPEC
(c) 2004 Institution of Electrical Engineers. All rts. reserv.

6307972 INSPEC Abstract Number: B1999-09-6210L-046, C1999-09-6150N-035
Title: A dynamic object replication and migration protocol for an Internet hosting service
Author(s): Rabinovich, M.; Rabinovich, I.; Rajaraman, R.; Aggarwal, A.
Author Affiliation: AT&T Res. Labs., Florham Park, NJ, USA
Conference Title: Proceedings. 19th IEEE International Conference on Distributed Computing Systems (Cat. No.99CB37003) p.101-13
Editor(s): Gouda, M.G.
Publisher: IEEE Comput. Soc, Los Alamitos, CA, USA
Publication Date: 1999 Country of Publication: USA xvi+554 pp.
ISBN: 0 7695 0222 9 Material Identity Number: XX-1999-01873
U.S. Copyright Clearance Center Code: 1063 6927/99/$10.00
Conference Title: Proceedings. 19th IEEE International Conference on Distributed Computing Systems
Conference Sponsor: IEEE Comput. Soc. Tech. Committee on Distributed Process
Conference Date: 31 May-4 June 1999 Conference Location: Austin, TX, USA
Language: English Document Type: Conference Paper (PA)
Treatment: Practical (P)
Abstract: The paper proposes a protocol suite for dynamic replication and migration of Internet **objects** . It consists of an algorithm for deciding on the number and location of **object** replicas and an algorithm for **distributing** requests among currently available replicas. Our approach attempts to **place** replicas in the vicinity of a majority of requests, while ensuring at the same time that no servers are overloaded. The request **distribution** algorithm uses the same simple mechanism to take into account both server **proximity** and load, without actually knowing the latter. The replica **placement** algorithm executes autonomously on each node, without the knowledge of other **object** replicas in the system. The proposed algorithms rely on the information available in databases maintained by Internet routers. A simulation study using synthetic workloads and the network backbone of UUNET, one of the largest Internet service providers, shows that the proposed protocol is effective in eliminating hot spots and achieves a significant reduction in backbone **traffic** and server response time at the expense of creating only a small number of extra replicas. (35 Refs)
Subfile: B C
Descriptors: client-server systems; **distributed object** management; Internet; protocols
Identifiers: dynamic **object** replication; **object** migration protocol; Internet hosting service; protocol suite; Internet **objects** ; request **distribution** algorithm; server **proximity** ; replica **placement** algorithm; Internet routers; simulation study; synthetic workloads; network backbone; UUNET; Internet service provider; backbone **traffic** ; server response time
Class Codes: B6210L (Computer communications); B6150M (Protocols); C6150N (Distributed systems software); C7210N (Information networks); C5620W (Other computer networks); C6110J (Object-oriented programming); C5640 (Protocols)
Copyright 1999, IEE

16/5/14 (Item 3 from file: 2)
DIALOG(R)File 2:INSPEC
(c) 2004 Institution of Electrical Engineers. All rts. reserv.

6029309 INSPEC Abstract Number: B9811-6430-002, C9811-5620-001
Title: Design and evaluation of movie allocation algorithms for distributed video -on-demand systems
Author(s): Ihn-Han Bae; Sung-Kwang Chun
Journal: Journal of KISS(A) (Computer Systems and Theory) vol.25, no.6 p.536-48
Publisher: Korea Inf. Sci. Soc,
Publication Date: June 1998 Country of Publication: South Korea
CODEN: CKNOF2 ISSN: 1226-2315
SICI: 1226-2315(199806)25:6L.536:DEMA;1-H
Material Identity Number: E345-98008
Language: Korean Document Type: Journal Paper (JP)
Treatment: Applications (A); Practical (P)
Abstract: The large size, hard real-time constraints, and general complexity of a video-on-demand system lead to many difficult design decisions that may affect the system's ultimate cost and performance substantially. The primary design problems of the video-on-demand system are real-time disk scheduling, buffer management, prefetching, movie allocation, disk striping, device bandwidth reduction and others, where the movie allocation determines the number of movie copies and the **placement** of movie copies in video servers. The movie allocation among these problems is important because it controls an efficient **usage** of space and bandwidth on **video servers** . In this paper, we study the movie allocation for **distributed video** -on-demand systems, and propose a movie replication algorithm considering space and movie popularity, and a movie allocation algorithm which has a new movie selection policy, grouped alternation and a new movie **placement** policy, SCAN. We design two movie allocation algorithms: grouped alternate round-robin and grouped alternate SCAN, where the proposed algorithms allocate a group of movies instead of one movie to video servers at each round. The performance of the proposed algorithms is evaluated through simulations. Simulation results show that the performance of the proposed algorithms is better than that of other algorithms in terms of load balancing among video severs' bandwidths and blocking probability for a movie request. (12 Refs)
Subfile: B C
Descriptors: buffer storage; computational complexity; interactive television; processor scheduling; storage management
Identifiers: movie allocation algorithms; **distributed video** -on-demand systems; hard real-time constraints; general complexity; performance; real-time disk scheduling; buffer management; prefetching; movie allocation ; movie allocation algorithm; SCAN; movie **placement** policy; grouped alternate round-robin; grouped alternate SCAN; simulations; load balancing; blocking probability
Class Codes: B6430 (Television equipment, systems and applications); C5620 (Computer networks and techniques); C4240C (Computational complexity); C6120 (File organisation); C6150N (Distributed systems software)
Copyright 1998, IEE

16/5/16 (Item 5 from file: 2)
DIALOG(R)File 2:INSPEC
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5622828 INSPEC Abstract Number: B9708-6430H-003, C9708-5620-033
Title: Load management in distributed video **servers**
Author(s): Venkatasubramanian, N.; Ramanathan, S.
Author Affiliation: Hewlett-Packard Labs., Palo Alto, CA, USA
Conference Title: Proceedings of the 17th International Conference on Distributed Computing Systems (Cat. No.97CB36053) p.528-35
Publisher: IEEE Comput. Soc. Press, Los Alamitos, CA, USA
Publication Date: 1997 Country of Publication: USA xvii+596 pp.
ISBN: 0 8186 7813 5 Material Identity Number: XX97-00996
U.S. Copyright Clearance Center Code: 0 8186 7813 5/97/$10.00
Conference Title: Proceedings of 17th International Conference on Distributed Computing Systems
Conference Sponsor: IEEE Comput. Soc. Tech. Committee on Distributed Process
Conference Date: 27-30 May 1997 Conference Location: Baltimore, MD, USA
Language: English Document Type: Conference Paper (PA)
Treatment: Practical (P)
Abstract: We define and formulate various policies for load management in **distributed video** servers. We propose a predictive **placement** policy that determines the degree of replication necessary for popular videos using a cost based optimization procedure based on a priori predictions of expected subscriber requests. For scheduling requests, we propose an adaptive scheduling policy that compares the relative utilization of resources in a video server to determine an assignment of requests to replicas. To optimize storage utilization, we also devise methods for dereplication of **videos** based on changes in their popularities and in **server usage patterns** . Performance evaluations indicate that a load management procedure which uses a judicious combination of the different policies performs best for most server configurations. Advances in storage technologies are making high performance video servers a reality. These video servers are being deployed over emerging broadband networks to deliver a variety of interactive, digital video services to thousands of residential subscribers. To meet the scalability requirements in such large deployments, **distributed video** server architectures are being considered (M. Buddhikot and G. Parulkar, 1995). We propose various methods for load management that are targeted at improving the cost effectiveness of **distributed video** servers. (8 Refs)
Subfile: B C
Descriptors: broadband networks; interactive video; network servers; resource allocation; video equipment
Identifiers: load management; **distributed video** servers; predictive **placement** policy; replication; popular videos; cost based optimization procedure; a priori predictions; expected subscriber requests; scheduling requests; adaptive scheduling policy; relative resource utilization; broadband networks; digital video services; residential subscribers; scalability requirements; **distributed video** server architectures; cost effectiveness
Class Codes: B6430H (Video recording); B6210L (Computer communications); C5620 (Computer networks and techniques); C5690 (Other data communication equipment and techniques); C6150J (Operating systems)
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16/5/17 (Item 6 from file: 2)
DIALOG(R)File 2:INSPEC
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4603370 INSPEC Abstract Number: B9404-6210L-014, C9404-5620-008
Title: A case for caching file objects inside internetworks
Author(s): Danzig, P.B.; Hall, R.S.; Schwartz, M.F.
Author Affiliation: Dept. of Comput. Sci., Univ. of Southern California, Los Angeles, CA, USA
Journal: Computer Communication Review vol.23, no.4 p.239-48
Publication Date: Oct. 1993 Country of Publication: USA
CODEN: CCRED2 ISSN: 0146-4833
Conference Title: SIGCOMM '93. Communications Architectures, Protocols and Applications
Conference Date: 13-17 Sept. 1993 Conference Location: San Francisco, CA, USA
Language: English Document Type: Conference Paper (PA); Journal Paper (JP)
Treatment: Experimental (X)
Abstract: The paper presents evidence that several, judiciously **placed** **file caches** could reduce the volume of **file transfer** protocol (FTP) **traffic** by 42%. and hence the volume of all NSFNET backbone traffic by 21%. In addition, if the FTP client and server software automatically compressed data, these savings could increase to 27%. The authors believe that a hierarchical architecture of whole file caches, modeled after the existing name server's caching architecture, could become a valuable part of any internet. They derived these conclusions by performing trace driven simulations of various file caching architectures, **cache** sizes, and replacement policies. They collected the traces of **file transfer** **traffic** employed in their simulations on a **network** that connects the NSFNET backbone to a large, regional network. This particular regional network is responsible for about 5 to 7% of NSFNET traffic. While the present paper's analysis and discussion focus on caching for FTP **file** **transfer** , the proposed caching architecture applies to caching objects from other internetwork services. (18 Refs)
Subfile: B C
Descriptors: buffer storage; internetworking; network operating systems; protocols; telecommunication traffic
Identifiers: file objects caching; internetworks; file caches; FTP traffic; NSFNET backbone traffic; FTP client software; FTP server software; data compression; hierarchical architecture; whole file cache; caching architecture; internet; trace driven simulations; cache size; replacement policies; **file transfer** traffic; **file transfer** protocol
Class Codes: B6210L (Computer communications); B6150M (Protocols); C5620 (Computer networks and techniques); C5640 (Protocols); C6150N (Distributed systems); C6150J (Operating systems)

16/5/19 (Item 1 from file: 233)
DIALOG(R)File 233:Internet & Personal Comp. Abs.
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00543305 99NC08-311

Make Web caching pay off -- You know Web caching saves time and resources, But what's the best caching solution for your enterprise?

Yerxa, Gregory

Network Computing , August 23, 1999 , v10 n17 p105-109, 4 Page(s)
ISSN: 1046-4468
Languages: English
Document Type: Articles, News & Columns
Geographic Location: United States

Discusses Web caching solutions. Describes how Web caching works. Reports that worldwide, caching has caught on, noting that estimates of cacheable content online are now **near** 80 percent. Says that typical caching configurations are the familiar cache-enabled proxy and the transparent cache. Explains that cache-enabled proxy is similar to a proxy server, except that Web content is stored on a random-access-memory (RAM) store or disk. Explains that most proxy **caches** also **cache** **File** **Transfer** Protocol (FTP), Gopher and **Network** News **Transfer** Protocol (NNTP) **traffic** . States that transparent caches intercept all outbound network **traffic** , including Hypertext **Transfer** Protocol (HTTP). Mentions three standard ways to **place** these caches inline, namely, as an Ethernet bridge, as the network's configured default gateway, and by using Web Caching Control Protocol (WCCP) developed by Cisco Systems. Includes one sidebar and one diagram. (MEM)

Descriptors: Caching; Web Tools; Information Management; Enterprise Computing

16/5/20 (Item 1 from file: 6)
DIALOG(R)File 6:NTIS
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1002913 NTIS Accession Number: DE82021572
File Migration in Distributed Computer Systems
Porcar, J. M.
California Univ., Berkeley. Lawrence Berkeley Lab.
Corp. Source Codes: 005029222; 9513034
Sponsor: Department of Energy, Washington, DC.
Report No.: LBL-14763
Jul 82 159p
Languages: English
Journal Announcement: GRAI8307; NSA0700
Portions of document are illegible. Thesis.
Order this product from NTIS by: phone at 1-800-553-NTIS (U.S. customers); (703)605-6000 (other countries); fax at (703)321-8547; and email at orders@ntis.fedworld.gov. NTIS is located at 5285 Port Royal Road, Springfield, VA, 22161, USA.
NTIS Prices: PC A08/MF A01
Country of Publication: United States
Contract No.: AC03-76SF00098

The management of global (shared) files can have a big impact on the performance of distributed computer systems. In this dissertation effort is devoted to the study of the file referencing process and to the development of algorithms to **place** and migrate **files** in **distributed** computer systems. The topic of assigning files to the nodes of computer networks has received considerable attention in the past. Unfortunately, most of the work in this area has concentrated on the optimization of **distributed file** systems based on extremely simple models of the workload. This study is based on traces of activity collected from a number of real systems. The workload could be analyzed and algorithms adapted to it. Synthetic distributed systems were obtained from the real centralized systems that generated the traces. The SLAC and the Hughes systems were used. This partitioning of the users of a large centralized computer system into a number of smaller user communities was based on their utilization of shared files. The SLAC system was found to produce user subsets with a higher degree of overlapping (in terms of shared files) than the Hughes Aircraft installation. The file migration policies are introduced. First the single copy policies are presented. In this context a migration policy was developed that is optimal in the sense of minimizing the average **network traffic** . The existence of extended localities in the use of shared **files** suggested the use of multiple-copy policies in order to reduce the network traffic even further. A number of policies based on the Working Set model were studied. The best performing policies in terms of generated traffic are those that closely monitor the update traffic and that react to it by deleting the copies that are too expensive to maintain up to date. (ERA citation 07:060691)

Descriptors: *Computer networks; Data processing; Data base management; Mathematical models
Identifiers: ERDA/990200; NTISDE
Section Headings: 62B (Computers, Control, and Information Theory--Computer Software); 45C (Communication--Common Carrier and Satellite)

16/5/23 (Item 1 from file: 34)
DIALOG(R)File 34:SciSearch(R) Cited Ref Sci
(c) 2004 Inst for Sci Info. All rts. reserv.

08622607 Genuine Article#: 308VZ Number of References: 16
Title: Architecture of a VOD system with proxy servers
Author(s): Ahn KA (REPRINT) ; Choi H; Kim WO
Corporate Source: CHUNGNAM NATL UNIV,DEPT COMP ENGN, DISTRIBUTED SYST LAB, YUSONG GU, 220 GOONG DONG/TAEJON 305764//SOUTH KOREA/ (REPRINT)
Journal: IEICE TRANSACTIONS ON COMMUNICATIONS, 2000, VE83B, N4 (APR), P 850-857
ISSN: 0916-8516 Publication date: 20000400
Publisher: IEICE-INST ELECTRONICS INFORMATION COMMUNICATIONS ENG, KIKAI-SHINKO-KAIKAN BLDG MINATO-KU SHIBAKOEN 3 CHOME, TOKYO 105, JAPAN
Language: English Document Type: ARTICLE
Geographic Location: SOUTH KOREA
Subfile: CC ENGI--Current Contents, Engineering, Computing & Technology
Journal Subject Category: ENGINEERING, ELECTRICAL & ELECTRONIC; TELECOMMUNICATIONS
Abstract: We present an architecture of a VOD system employing proxy servers. The proposed VOD system provides efficient and reliable VOD services and solves the problems caused by traditional VOD systems of centralized, hierarchical or distributed architecture. The proxy servers are **placed** between video servers and user systems. The proxy server is a small size video server that has not only caching function but also intelligence such as VCR-like video stream control or navigation of other proxy/video servers to search for a selected video program. Using a VOD system of the proposed architecture, the VOD services can be provided to more users because it reduces the workload of **video servers** and **network traffic** , me provide the performance model of the system. Service availability is also analyzed. The proposed architecture shows better performance and availability than the traditional VOD architectures.
Descriptors--Author Keywords: **video** -on-demand ; **distributed** computing systems ; proxy-distributed architecture ; **cache** replacement service availability ; **traffic** analysis
Identifiers--KeyWord Plus(R): INTERACTIVE VIDEO
Cited References:

```
Set     Items   Description
S1     135655   SERVER? OR REMOTE()STORAGE? OR ROUTER?
S2    1176955   DATAFILE? OR FILE? OR OBJECT? OR VIDEO? OR MULTIMEDIA? OR -
            BLOB OR BLOBS
S3    2670947   MOVE? OR RELOCAT? OR TRANSFER?
S4    1296885   PLACE? OR GEOGRAPHIC()LOCATION? OR ADDRESS?
S5    1461588   NEAR? OR PROXIMIT? OR CLOSE? OR SHORTEST()DISTANCE?
S6    1210679   FREQUENC? OR ACCESS? OR USAGE? OR POPULAR?
S7          3   S1 AND S2 AND S3 AND S4 AND S5 AND S6
S8        647   S1 AND S2 AND S3 AND S4
S9        207   S8 AND (S5 OR S6)
S10     26676   S3(2N)S2
S11        64   S9 AND S10
S12         9   S11 AND (LOAD()BALANC? OR RESOURCE?)
S13      5652   (PHYSICAL? OR GEOGRAPHIC?)()(LOCATION? OR ADDRESS?)
S14         2   S11 AND S13
S15         1   S11 AND S5
S16         2   S14 OR S15
S17       408   (CLOSE? OR NEAR? OR SHORTEST()DISTANC? OR ADJACENT?)(3N)S1
S18         3   S8 AND S17
S19         2   S18 NOT (S16 OR S12 OR S7)
S20     42393   S2(2N)(S3 OR REDISTRIBUT? OR LOCATE OR LOCATING OR MOVING)
S21      3310   (S1 OR NETWORK? OR INTRANET? OR WWW OR WORLDWIDE()WEB OR W-
            ORLDWIDEWEB) AND S20
S22       449   S21 AND (S13 OR S4)
S23         5   S22 AND S5
S24         1   S23 AND S6
S25       118   S22 AND S6
S26         1   S25 AND ORIGINAL()S2
S27         6   S26 OR S24 OR S23
S28         5   S27 NOT (S14 OR S16 OR S19 OR S12 OR S7)
S29       279   S2(4N)(S3 OR DISTRIBUT? OR REDISTRIBUTE?) AND S5 AND S6
S30        44   S29 AND IC=(G06F? OR H04L?)
S31        12   S21 AND S29
S32        18   S30 AND (S1 OR NETWORK? OR INTRANET? OR WWW OR WORLDWIDE()-
              WEB OR (SERVER OR BLOB)()(FARM?))
S33        24   S32 OR S31
S34        22   S33 NOT (S14 OR S16 OR S19 OR S12 OR S7 OR S28)
File 347:JAPIO Nov 1976-2003/Dec(Updated 040402)
         (c) 2004 JPO & JAPIO
File 350:Derwent WPIX 1963-2004/UD,UM &UP=200426
         (c) 2004  Thomson Derwent
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19/5/1 **(Item 1 from file: 347)**
DIALOG(R)File 347:JAPIO
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06780365 **Image available**
COMMUNICATION METHOD

PUB. NO.: 2001-007841 [JP 2001007841 A]
PUBLISHED: January 12, 2001 (20010112)
INVENTOR(s): SAKAKURA TAKASHI
APPLICANT(s): MITSUBISHI ELECTRIC CORP
APPL. NO.: 11-175661 [JP 99175661]
FILED: June 22, 1999 (19990622)
INTL CLASS: H04L-012/54; H04L-012/58; G06F-013/00; H04L-001/00; H04L-029/08

ABSTRACT

PROBLEM TO BE SOLVED: To realize communication of a **server** /client type application program with more excellent response performance that can cope with increase in a communication delay and reduction in a communication **transfer** speed due to factors such as use of a communication medium with a large delay and at a slow **transfer** rate, increase in number of intermediate communication passing **places** or increase or the like in a physical distance of a communication path.
SOLUTION: A communication characteristic between a **server** program 203 on a **server** machine and a client machine 206 is measured, and when the communication characteristic does not satisfy a prescribed communication characteristic criterion, at least part of the **server** program 203 is copied to a **server object** machine **close** to the client machine 206 and the client program on the client machine 206 is connected to the copied **server** program 202.

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34/5/8 (Item 5 from file: 350)
DIALOG(R)File 350:Derwent WPIX
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014565659 **Image available**
WPI Acc No: 2002-386362/200242
XRPX Acc No: N02-302587
Position selection device in data network **, acquires identification information of relay devices between observed candidate position and user terminal position**
Patent Assignee: NIPPON TELEGRAPH & TELEPHONE CORP (NITE)
Number of Countries: 001 Number of Patents: 002
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
JP 2002009828	A	20020111	JP 2000185140	A	20000620	200242	B
JP 3401478	B2	20030428	JP 2000185140	A	20000620	200330	

Priority Applications (No Type Date): JP 2000185140 A 20000620
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
JP 2002009828	A		24	H04L-012/56	
JP 3401478	B2		24	H04L-012/56	Previous Publ. patent JP 2002009828

Abstract (Basic): JP 2002009828 A
NOVELTY - The identification information of relay devices between each observed candidate position for installing the **server** , to the user terminal position is acquired, based on which the **shortest distance** between candidate and user terminal positions, is identified.
DETAILED DESCRIPTION - INDEPENDENT CLAIMS are included for the following:
(1) Position selection system; and
(2) Recorded medium storing position selection program.
USE - For providing information delivery service by HTTP using several web **server** , especially when the service provided includes voluminous information to be **transferred** , like **file** delivery, **video** streaming, etc., in internet.
ADVANTAGE - **Frequency** of packet transfer in position selection process, is reduced. Thus reducing estimation process duration and **network** load. Presumption of more suitable vicinity position is possible, with reduced estimation error. The size of the path information table and **server** information table are small, which reduces required memory resource.
DESCRIPTION OF DRAWING(S) - The figure shows the basic components of the position selection device. (Drawing includes non-English language text).
pp; 24 DwgNo 1/14
Title Terms: POSITION; SELECT; DEVICE; DATA; **NETWORK** ; ACQUIRE; IDENTIFY; INFORMATION; RELAY; DEVICE; OBSERVE; CANDIDATE; POSITION; USER; TERMINAL; POSITION
Derwent Class: W01
International Patent Class (Main): **H04L-012/56**
International Patent Class (Additional): **G06F-013/00**
File Segment: EPI

492978

16/5/20 (Item 1 from file: 6)
DIALOG(R)File 6:NTIS
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(275) Jacob Beth 4A30 2175 305-3755

1002913 NTIS Accession Number: DE82021572
File Migration in Distributed Computer Systems
Porcar, J. M.
California Univ., Berkeley. Lawrence Berkeley Lab.
Corp. Source Codes: 005029222; 9513034
Sponsor: Department of Energy, Washington, DC.
Report No.: LBL-14763
Jul 82 159p
Languages: English
Journal Announcement: GRAI8307; NSA0700
Portions of document are illegible. Thesis.
Order this product from NTIS by: phone at 1-800-553-NTIS (U.S. customers); (703)605-6000 (other countries); fax at (703)321-8547; and email at orders@ntis.fedworld.gov. NTIS is located at 5285 Port Royal Road, Springfield, VA, 22161, USA.
NTIS Prices: PC A08/MF A01
Country of Publication: United States
Contract No.: AC03-76SF00098

The management of global (shared) files can have a big impact on the performance of distributed computer systems. In this dissertation effort is devoted to the study of the file referencing process and to the development of algorithms to place and migrate files in distributed computer systems. The topic of assigning files to the nodes of computer networks has received considerable attention in the past. Unfortunately, most of the work in this area has concentrated on the optimization of distributed file systems based on extremely simple models of the workload. This study is based on traces of activity collected from a number of real systems. The workload could be analyzed and algorithms adapted to it. Synthetic distributed systems were obtained from the real centralized systems that generated the traces. The SLAC and the Hughes systems were used. This partitioning of the users of a large centralized computer system into a number of smaller user communities was based on their utilization of shared files. The SLAC system was found to produce user subsets with a higher degree of overlapping (in terms of shared files) than the Hughes Aircraft installation. The file migration policies are introduced. First the single copy policies are presented. In this context a migration policy was developed that is optimal in the sense of minimizing the average network traffic . The existence of extended localities in the use of shared files suggested the use of multiple-copy policies in order to reduce the network traffic even further. A number of policies based on the Working Set model were studied. The best performing policies in terms of generated traffic are those that closely monitor the update traffic and that react to it by deleting the copies that are too expensive to maintain up to date. (ERA citation 07:060691)

Descriptors: *Computer networks; Data processing; Data base management; Mathematical models
Identifiers: ERDA/990200; NTISDE
Section Headings: 62B (Computers, Control, and Information Theory--Computer Software); 45C (Communication--Common Carrier and Satellite)

NTIS ordered*

```
Set     Items   Description
S1     135655   SERVER? OR REMOTE()STORAGE? OR ROUTER?
S2    1176955   DATAFILE? OR FILE? OR OBJECT? OR VIDEO? OR MULTIMEDIA? OR -
            BLOB OR BLOBS
S3    2670947   MOVE? OR RELOCAT? OR TRANSFER?
S4    1296885   PLACE? OR GEOGRAPHIC()LOCATION? OR ADDRESS?
S5    1461588   NEAR? OR PROXIMIT? OR CLOSE? OR SHORTEST()DISTANCE?
S6    1210679   FREQUENC? OR ACCESS? OR USAGE? OR POPULAR?
S7          3   S1 AND S2 AND S3 AND S4 AND S5 AND S6
S8        647   S1 AND S2 AND S3 AND S4
S9        207   S8 AND (S5 OR S6)
S10     26676   S3(2N)S2
S11        64   S9 AND S10
S12         9   S11 AND (LOAD()BALANC? OR RESOURCE?)
S13      5652   (PHYSICAL? OR GEOGRAPHIC?)()(LOCATION? OR ADDRESS?)
S14         2   S11 AND S13
S15         1   S11 AND S5
S16         2   S14 OR S15
S17       408   (CLOSE? OR NEAR? OR SHORTEST()DISTANC? OR ADJACENT?)(3N)S1
S18         3   S8 AND S17
S19         2   S18 NOT (S16 OR S12 OR S7)
S20     42393   S2(2N)(S3 OR REDISTRIBUT? OR LOCATE OR LOCATING OR MOVING)
S21      3310   (S1 OR NETWORK? OR INTRANET? OR WWW OR WORLDWIDE()WEB OR W-
            ORLDWIDEWEB) AND S20
S22       449   S21 AND (S13 OR S4)
S23         5   S22 AND S5
S24         1   S23 AND S6
S25       118   S22 AND S6
S26         1   S25 AND ORIGINAL()S2
S27         6   S26 OR S24 OR S23
S28         5   S27 NOT (S14 OR S16 OR S19 OR S12 OR S7)
S29       279   S2(4N)(S3 OR DISTRIBUT? OR REDISTRIBUTE?) AND S5 AND S6
S30        44   S29 AND IC=(G06F? OR H04L?)
S31        12   S21 AND S29
S32        18   S30 AND (S1 OR NETWORK? OR INTRANET? OR WWW OR WORLDWIDE()-
            WEB OR (SERVER OR BLOB)()(FARM?))
S33        24   S32 OR S31
S34        22   S33 NOT (S14 OR S16 OR S19 OR S12 OR S7 OR S28)
S35    135655   SERVER? OR REMOTE()STORAGE? OR ROUTER?
S36   1176955   DATAFILE? OR FILE? OR OBJECT? OR VIDEO? OR MULTIMEDIA? OR -
            BLOB OR BLOBS
S37   3233821   MOVE? OR RELOCAT? OR REPOSITION? OR REDISTRIBUT? OR DISTRI-
            BUT? OR TRANSFER?
S38   1056405   PLACE? OR (GEOGRAPHIC? OR PHYSICAL?)(2N)(LOCATION? OR ADDR-
            ESS?)
S39    810533   NEAR OR NEARBY OR CLOSE OR CLOSER OR SHORTEST()DISTANC? OR
            PROXIMIT?
S40     91312   (USAGE OR ACCESS)(3N)(PATTERN? OR USE OR USAGE? OR FREQUEN-
            T?) OR MOST()POPULAR?
S41         8   S35 AND S36 AND S37 AND S38 AND S39
S42         7   S36 AND S37 AND S38 AND S39 AND S40
S43         2   S35 AND S38 AND S39 AND S40
S44        17   S41 OR S42 OR S43
S45        15   S44 NOT (S34 OR S14 OR S16 OR S19 OR S12 OR S7 OR S28)
S46         8   S45 AND IC=(G06F? OR H04L?)
File 347:JAPIO Nov 1976-2003/Dec(Updated 040402)
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File 350:Derwent WPIX 1963-2004/UD,UM &UP=200426
         (c) 2004  Thomson Derwent
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